

FCC Radio Test Report

FCC ID : HDC-17600030F1
Contains FCC ID : HDC-649B
Equipment : WiFi 6 Mesh AP
Brand Name : **ADTRAN**® or **Adtran**
Model Name : 841-t6YYYYYY(Y can be 0-9, a-z, A-Z, blank, "+" or "-" or "#")
Part Number : 17600030FYYYYYYY(Y can be 0-9, a-z, A-Z, blank, "+" or "-" or "#")
Applicant : Adtran
901 Explorer Blvd., Huntsville, AL 35806, USA
Manufacturer : XAVi Technologies Corporation
22F., No.69, Sec. 2, Guangfu Rd., Sanchong Dist.,
New Taipei City 241, Taiwan (R.O.C.)
Standard : 47 CFR FCC Part 15.407

The product was received on Nov. 13, 2024, and testing was started from Dec. 18, 2024 and completed on Jan. 03, 2025. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Hsinhua Laboratory, the test report shall not be reproduced except in full.


Approved by: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



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History of this test report

[illegible]

Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
-	15.207	AC Power-line Conducted Emissions	Not Required	Refer as 1.1.6
-	15.407(a)	Emission Bandwidth	Not Required	Refer as 1.1.6
3.1	15.407(a)	Maximum Conducted Output Power	PASS	-
-	15.407(a)	Peak Power Spectral Density	Not Required	Refer as 1.1.6
3.2	15.407(b)	Unwanted Emissions	PASS	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and explanations:

The EUT supports beamforming and CDD modes, and the CDD mode is the worst case. Therefore, all test items are evaluated in the report. The beamforming mode only evaluates the output power.

Reviewed by: Sam Tsai

Report Producer: Amber Chiu

1 General Description

1.1 Information

The EUT contains certified module FCC ID: HDC-649B for WLAN 5G High Band.

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	a, n (HT20), ac (VHT20), ax (HEW20)	5180-5240	36-48 [4]
5250-5350		5260-5320	52-64 [4]
5470-5725		5500-5700	100-140 [11]
Straddle 5720		5720	144 [1]
5725-5850		5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40), ax (HEW40)	5190-5230	38-46 [2]
5250-5350		5270-5310	54-62 [2]
5470-5725		5510-5670	102-134 [5]
Straddle 5710		5710	142 [1]
5725-5850		5755-5795	151-159 [2]
5150-5250	ac (VHT80), ax (HEW80)	5210	42 [1]
5250-5350		5290	58 [1]
5470-5725		5530-5610	106-122 [2]
Straddle 5690		5690	138 [1]
5725-5850		5775	155 [1]

Non-Beamforming

Band	Mode	BWch (MHz)	Nant
5.25-5.35GHz	802.11ax HEW40	40	2TX

Beamforming

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11ax HEW20-BF	20	2TX

Note:

- 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- VHT20, VHT40, VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- HEW20, HEW40, HEW80 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Support
1	Galtronics	02036142-07357-1	PIFA	N/A	5G DFS RX
2	Galtronics	02036073-07357-3	PIFA	N/A	BT
3	Galtronics	60-2962-03-4	PCB	U.FL	2.4G+5G
4	Galtronics	60-2962-03-3	PCB	U.FL	2.4G+5G
5	Galtronics	60-2888-03-1	PCB	U.FL	5G
6	Galtronics	60-2791-03	PCB	U.FL	5G
7	Galtronics	60-2791-03	PCB	U.FL	5G
8	Galtronics	60-2888-03-1	PCB	U.FL	5G

Non-Beamforming

Ant.	Port	Gain (dBi)		
		2.4G	5G	BT
1	1	-	4.7	-
2	1	-	-	5.3
3	1	2.7	3.7	-
4	2	2.7	3.7	-
5	1	-	3.9	-
6	2	-	2.1	-
7	3	-	2.1	-
8	4	-	3.9	-

Note 1: The EUT has eight antennas.

For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ax mode (2TX/2RX)

Ant. 3 (port 1) and Ant. 4 (port 2) could transmit/receive simultaneously.

For BT function:

For IEEE 802.15.1 Bluetooth mode (1TX/1RX)

Only Ant. 2 (port 1) can be used as transmitting/receiving.

For 5GHz function (Low Band):

For IEEE 802.11 a/n/ac/ax mode (2TX/2RX)

Ant. 3 (port 1) and Ant. 4 (port 2) could transmit/receive simultaneously.

For 5GHz function (High Band):

For IEEE 802.11 a/n/ac/ax mode (4TX/4RX)

Ant. 5 (port 1), Ant. 6 (port 2), Ant. 7 (port 3) and Ant. 8 (port 4) could transmit/receive simultaneously.

Note 2: Directional gain information

	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$
BF	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$

1.1.3 EUT Information

Operational Condition				
EUT Power Type	From AC Adapter			
EUT Function	☐	Outdoor AP	☒	Indoor AP
	☐	Fixed P2P AP	☐	Client
Beamforming Function	☒	With beamforming	☐	Without beamforming
TPC Function	☒	With TPC Function	☐	Without TPC Function
Weather Band	☒	With 5600~5650MHz	☐	Without 5600~5650MHz
Resource Unit	☒	Full RU	☐	Partial RU
	☐	MRU(static preamble puncturing)	☐	MRU(dynamic preamble puncturing)
Type of EUT				
☒	Stand-alone			
☐	Combined (EUT where the radio part is fully integrated within another device)			
	Combined Equipment - Brand Name / Model No.: ...			
☐	Plug-in radio (EUT intended for a variety of host systems)			
	Host System - Brand Name / Model No.:			
☐	Other:			

1.1.4 Mode Test Duty Cycle

Non-Beamforming

Mode	DC	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW40_Nss1,(MCS0)_2TX	0.705	1.52	315.625u

Note. If DC < 0.98, the DCF was added while measuring Output power and PSD.

Beamforming

Mode	DC	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	0.977	0.1	3.788m

Note. If DC < 0.98, the DCF was added while measuring Output power and PSD.

1.1.5 Table for Multiple Listing

The model names in the following table are all refer to the identical product.

Model Name	Color	Description
841-t6YYYYYYY(Y can be 0-9, a-z, A-Z, blank, "+" or "-" or "#")	White	All the models are identical, the difference model served as marketing strategy.
	Black	

Note: The information is provided by manufacturer.

**1.1.6 Table for Permissive Change**

This product is an extension of original one reported under Sporton project number: FR182051-04AN

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. The 841 motherboard 5G filter and 5G module filter were replaced with Qorvo alternative materials.	The worst case of Maximum Conducted Output Power, Radiated emissions above 1GHz was evaluated.

Note : The information is provided by manufacturer.

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ KDB 789033 D02 v02r01

The following reference test guidance is not within the scope of accreditation of TAF:

- ♦ KDB 662911 D01 v02r01
- ♦ KDB 414788 D01 v01r01

1.3 Testing Location Information

Test Lab. : Sporton International Inc. Hsinhua Laboratory				
☒ Hsinhua (TAF: 3785)	ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)			
	TEL: 886-3-327-3456		FAX: 886-3-327-0973	
Test site Designation No. TW3785 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted_ Non-Beamforming	TH07-HY	Alan Chien	23.4~23.9°C / 52~55%	18/Dec/2024
RF Conducted_ Beamforming	TH07-HY	Alan Chien	23.4~23.9°C / 52~55%	27/Dec/2024
Radiated_ Non-Beamforming	03CH02-HY	Vasari Huang	22.2~23.4°C / 50~52%	03/Jan/2025
☒ Wenhua 3rd. (TAF: 3785)	ADD: No. 58, Aly. 75, Ln. 564, Wenhua 3rd Rd., Guishan Dist. Taoyuan City 333, Taiwan (R.O.C.)			
	TEL: 886-3-327-0868			
Test site Designation No. TW0036 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
Radiated_ Beamforming	03CH24-HY	Vasari Huang	22.2~23.4°C / 50~52%	27/Dec/2024

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Items	Uncertainty	Remark
Maximum Conducted Output Power	2 dB	Confidence levels of 95%
Unwanted Emissions	4.8 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

Test Software Version	MT7915 QA0.0.2.33
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Non-Beamforming

Mode	Power Setting
802.11ax HEW40_Nss1,(MCS0)_2TX	-
5270MHz	18

Beamforming

Mode	Power Setting
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-
5200MHz	36

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	Maximum Conducted Output Power
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests			
Tests Item	Unwanted Emissions		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	CTX		
1	Adapter mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT		V	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Operating Mode	CTX
1	Bluetooth+WLAN 2.4GHz+WLAN 5GHz (Low Band)+WLAN 5GHz (High Band)
Refer to Sporton Test Report No.: FA182051-05 for Co-location RF Exposure Evaluation.	



2.3 Accessories

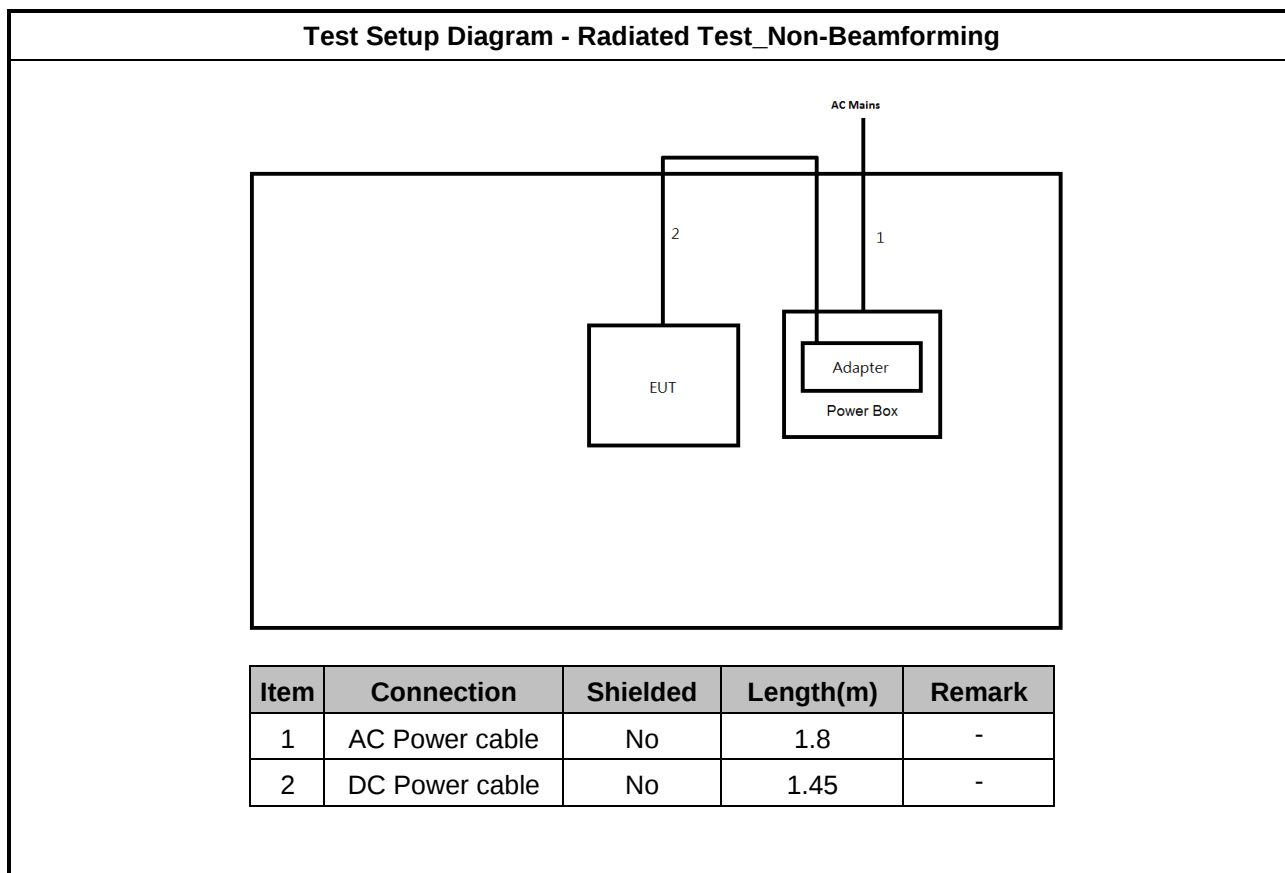
Accessories				
AC Adapter 1 (US Plug)	Brand Name	MASS POWER	Model Name	S030-1A120250VU
	Power Rating	I/P: 100 - 240 Vac, 0.8 A, O/P: 12.0 Vdc, 2.5 A		
	Power Cord	1.45 meter, non-shielded cable, w/o ferrite core		
AC Adapter 2 (US Plug)	Brand Name	KLEC	Model Name	KL-WA120250-Z
	Power Rating	I/P: 100 - 240 Vac, 1.2 A, O/P: 12.0 Vdc, 2.5 A		
	Power Cord	1.5 meter, non-shielded cable, w/o ferrite core		

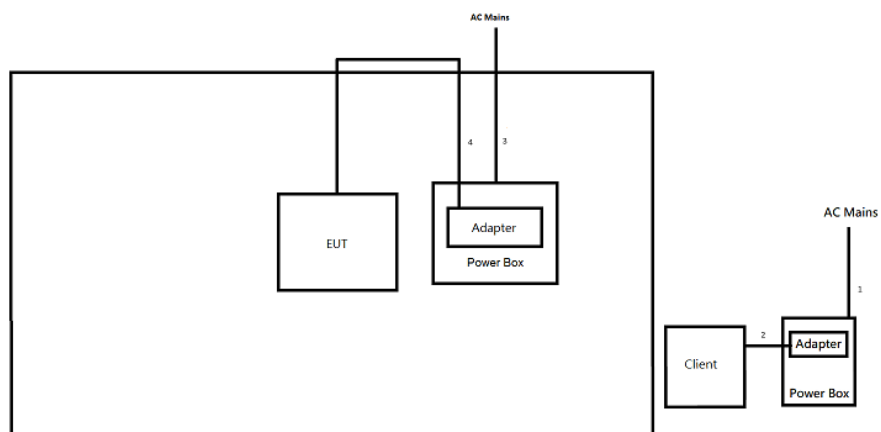
Reminder: Regarding to more detail and other information, please refer to user manual.

2.4 Support Equipment

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	E5410	-	-
2	Adapter for NB	DELL	HA65NM130	-	-

2.5 Test Setup Diagram



Test Setup Diagram - Radiated Test_Beamforming


Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	DC Power cable	No	1.45	-
3	AC Power cable	No	1.8	-
4	DC Power cable	No	1.45	-

3 Transmitter Test Result

3.1 Maximum Conducted Output Power

3.1.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
UNII Devices	
☒ For the 5.15-5.25 GHz band:	
☐	Outdoor AP: the maximum conducted output power (P_{Out}) shall not exceed 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. e.i.r.p. at any elevation angle above 30 degrees ≤ 125mW [21dBm]
☐	Indoor AP: the maximum conducted output power (P_{Out}) shall not exceed 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$
☐	Point-to-point AP: the maximum conducted output power (P_{Out}) shall not exceed 1 W. If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$.
☐	Mobile or Portable Client: the maximum conducted output power (P_{Out}) shall not exceed 250 mW. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
☒ For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.	
☒ For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.	
☒ For the 5.725-5.85 GHz band:	
☐	Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$.
☐	Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed 1 W.
P_{Out} = maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

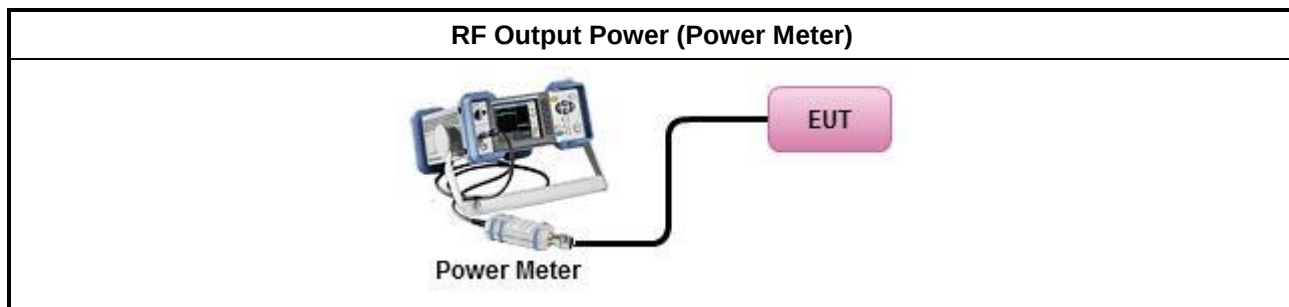
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method	
Maximum Conducted Output Power	
	Duty cycle $\geq 98\%$
☐	Refer as KDB 789033, clause E Method SA-2 (spectral trace averaging).
	Duty cycle $< 98\%$
☐	Refer as KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
	Wideband RF power meter and average over on/off periods with duty factor
☒	Refer as KDB 789033, clause E Method PM (using an RF average power meter).
For conducted measurement.	
	If the EUT supports multiple transmit chains using options given below: Refer as KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
	If multiple transmit chains, EIRP calculation could be following as methods: $P_{\text{total}} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $\text{EIRP}_{\text{total}} = P_{\text{total}} + \text{DG}$

3.1.4 Test Setup



3.1.5 Test Result of Maximum Conducted Output Power

Refer as Appendix A

3.2 Unwanted Emissions

3.2.1 Transmitter Radiated Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

Un-restricted band emissions above 1GHz Limit	
Operating Band	Limit
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.725 - 5.85 GHz	5.650-5700 GHz: e.i.r.p. -27 ~ 10 dBm [68.2 ~ 105.2 dBuV/m@3m] 5.700-5720 GHz: e.i.r.p. 10 ~ 15.6 dBm [105.2 ~ 110.8 dBuV/m@3m] 5.720-5725 GHz: e.i.r.p. 15.6 ~ 27 dBm [110.8 ~ 122.2 dBuV/m@3m] 5.850-5.855 GHz: e.i.r.p. 27 ~ 15.6 dBm [122.2 ~ 110.8 dBuV/m@3m] 5.855-5.875 GHz: e.i.r.p. 15.6 ~ 10 dBm [110.8 ~ 105.2 dBuV/m@3m] 5.875-5.925 GHz: e.i.r.p. 10 ~ -27 dBm [105.2 ~ 68.2dBuV/m@3m] Other un-restricted band: e.i.r.p. -27 dBm [68.2 dBuV/m@3m]

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

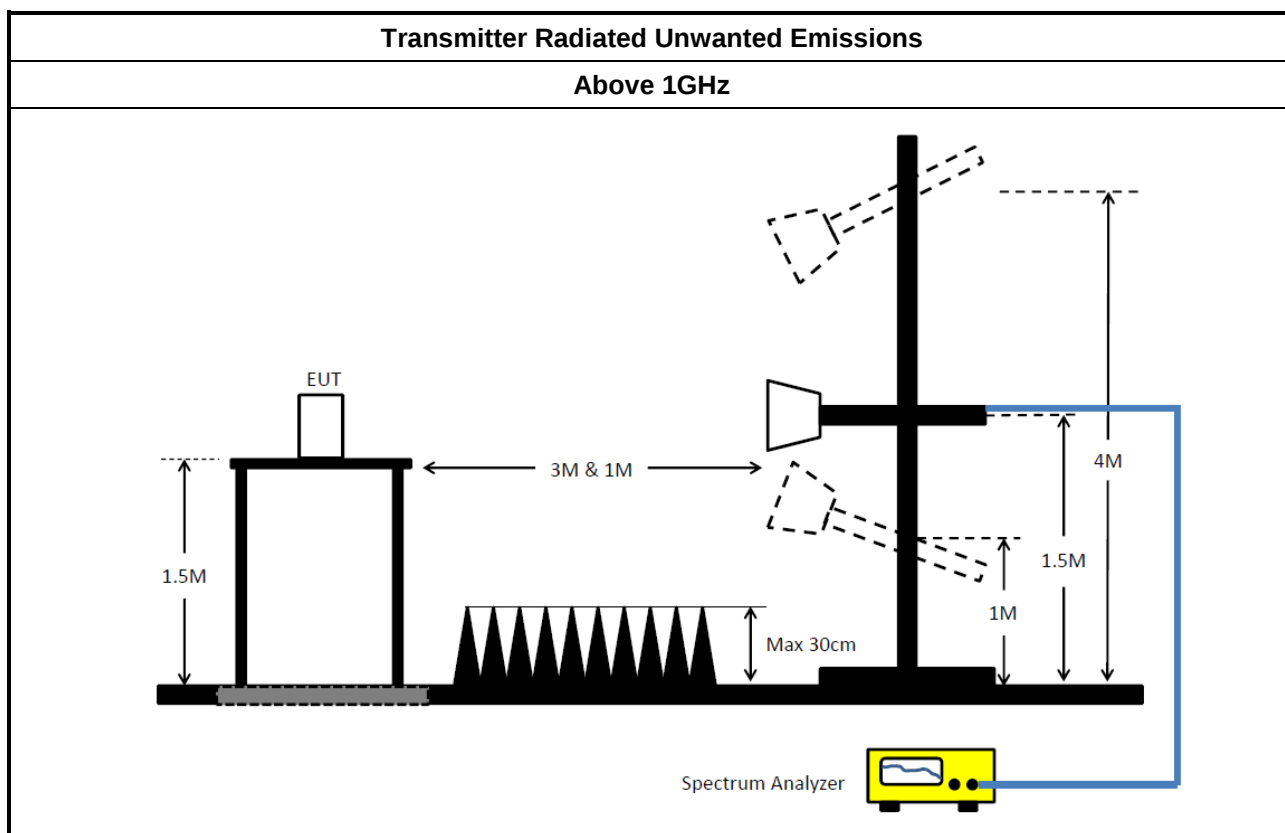
Test Method	
Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.
	Refer as KDB 789033, clause G)1) for unwanted emissions into restricted bands.
☒	Refer as KDB 789033, G)6) Method VB (ANSI C63.10, clause 4.1.4.2.3), Reduced VBW.
☒	Refer as KDB 789033, clause G)5) (ANSI C63.10, clause 4.1.4.2.2), measurement procedure peak limit.
For radiated measurement.	
	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
The any unwanted emissions level shall not exceed the fundamental emission level.	
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.	
Use the following spectrum analyzer settings:	
	Set RBW=100 kHz for $f < 1$ GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.
	Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement. For average measurement, refer as 1.1.4.
KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.	
	Based on FCC 15.31(f)(2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.
	Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

3.2.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamp Factor)

3.2.5 Test Setup



3.2.6 Test Result of Transmitter Unwanted Emissions

Refer as Appendix B



4 Test Equipment and Calibration Data

Instrument for Conducted Test Non-Beamforming

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101515	9kHz~40GHz	02/Feb/2024	01/Feb/2025
SMB100A Signal Generator	R&S	SMB100A	181147	100kHz~40GHz	16/Oct/2024	15/Oct/2025
Power Meter	Anritsu	ML2495A	2105003	300MHz~40GHz	13/Sep/2024	12/Sep/2025
Pulse Sensor	Anritsu	MA2411B	1911254	300MHz~40GHz	13/Sep/2024	12/Sep/2025
SENSE-15407_NII	Sporton	V5.11.20	N/A	N/A	N/A	N/A

Instrument for Conducted Test Beamforming

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101515	9kHz~40GHz	02/Feb/2024	01/Feb/2025
SMB100A Signal Generator	R&S	SMB100A	181147	100kHz~40GHz	16/Oct/2024	15/Oct/2025
Power Meter	Anritsu	ML2495A	1517010	300MHz~40GHz	18/Dec/2024	17/Dec/2025
Pulse Sensor	Anritsu	MA2411B	1339407	300MHz~40GHz	18/Dec/2024	17/Dec/2025
SENSE-15407_NII	Sporton	V5.11.22	N/A	N/A	N/A	N/A

Instrument for Radiated Test (03CH02-HY)

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Site V.S.W.R	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz~18GHz 3M	14/Jul/2024	13/Jul/2025
Signal Analyzer	R&S	FSP 40	100593	9kHz~40GHz	11/Mar/2024	10/Mar/2025
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02268	1GHz~18GHz	23/Sep/2024	22/Sep/2025
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	18GHz~40GHz	04/Jun/2024	03/Jun/2025
RF Cable-R03m	HUBER+SUHNER	SUCOFLEX 104	03CH02-cable-01	1GHz~40GHz	15/Feb/2024	14/Feb/2025
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz~26.5GHz	01/Oct/2024	30/Sep/2025
Microwave Preamplifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz ~40GHz	19/Apr/2024	18/Apr/2025
SENSE-15407-NII	Sporton	V5.11.20	N/A	N/A	N/A	N/A

**Instrument for Radiated Test (03CH24-HY)**

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH24-HY	1GHz~18GHz 3m	30/Jul/2024	29/Jul/2025
Signal Analyzer	ROHDE& SCHWARZ	FSV3044	101345	10Hz~44GHz	27/Aug/2024	26/Aug/2025
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02744	1GHz~18GHz	15/Aug/2024	14/Aug/2025
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	18GHz~40GHz	04/Jun/2024	05/Jun/2025
RF Cable	HUBER+SUHNER	SUOFLEX 104	03CH24-cable -01	9kHz~40GHz	01/Oct/2024	30/Sep/2025
Amplifier	EM	EM01G18G	060870	1GHz ~18GHz	12/Aug/2024	11/Aug/2025
Microwave Premplifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz ~ 40GHz	19/Apr/2024	18/Apr/2025
SENSE-15407-NII	Sporton	V5.11.22	NA	NA	NA	NA



Average Power Non-Beamforming

Appendix A.1

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.25-5.35GHz	-	-	-	-
802.11ax HEW40_Nss1,(MCS0)_2TX	21.99	0.15812	25.69	0.37068



Average Power Non-Beamforming

Appendix A.1

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5270MHz	Pass	3.70	18.85	19.10	21.99	23.98	25.69	Inf

DG = Directional Gain; Port X = Port X output power
Inf = There's no restriction for the limit.



Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	23.06	0.20230	29.77	0.94842



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5200MHz	Pass	6.71	20.05	20.05	23.06	29.29	29.77	Inf

DG = Directional Gain; Port X = Port X output power
Inf = There's no restriction for the limit.



Summary

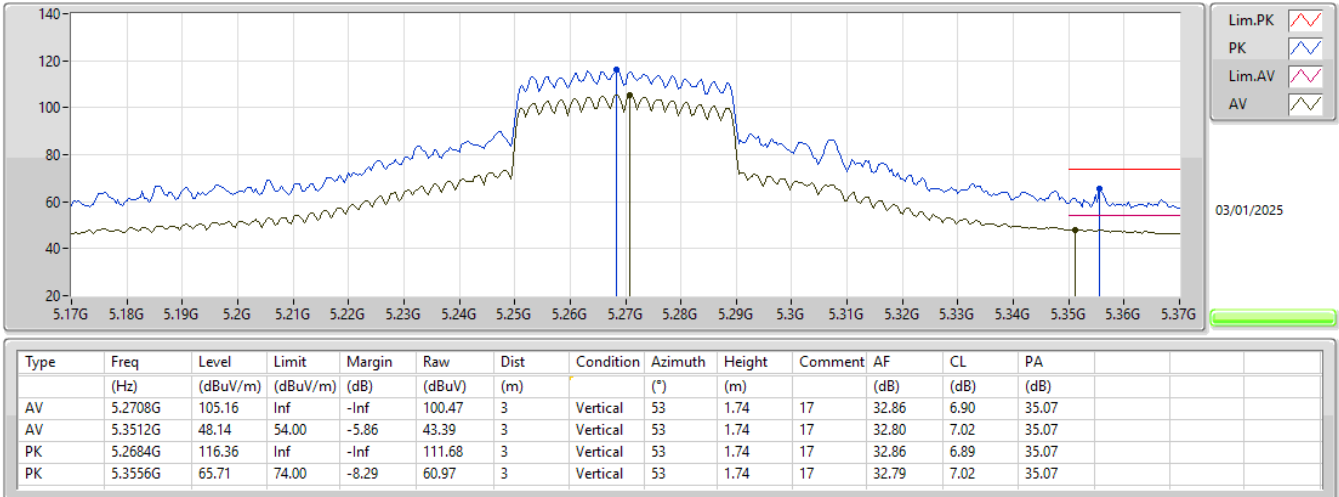
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
5.25-5.35GHz	-	-	-	-	-	-	-	-	-	-
802.11ax HEW40_Nss1,(MCS0)_2TX	Pass	PK	10.536G	67.98	68.20	-0.22	3	Horizontal	210	1.16

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
5270MHz	Pass	AV	5.2708G	105.16	Inf	-Inf	3	Vertical	53	1.74
5270MHz	Pass	AV	5.3512G	48.14	54.00	-5.86	3	Vertical	53	1.74
5270MHz	Pass	PK	5.2684G	116.36	Inf	-Inf	3	Vertical	53	1.74
5270MHz	Pass	PK	5.3556G	65.71	74.00	-8.29	3	Vertical	53	1.74
5270MHz	Pass	AV	5.2692G	93.96	Inf	-Inf	3	Horizontal	222	1.65
5270MHz	Pass	AV	5.3504G	45.00	54.00	-9.00	3	Horizontal	222	1.65
5270MHz	Pass	PK	5.274G	105.14	Inf	-Inf	3	Horizontal	222	1.65
5270MHz	Pass	PK	5.3528G	56.84	74.00	-17.16	3	Horizontal	222	1.65
5270MHz	Pass	PK	10.53072G	65.38	68.20	-2.82	3	Vertical	107	2.00
5270MHz	Pass	PK	10.536G	67.98	68.20	-0.22	3	Horizontal	210	1.16

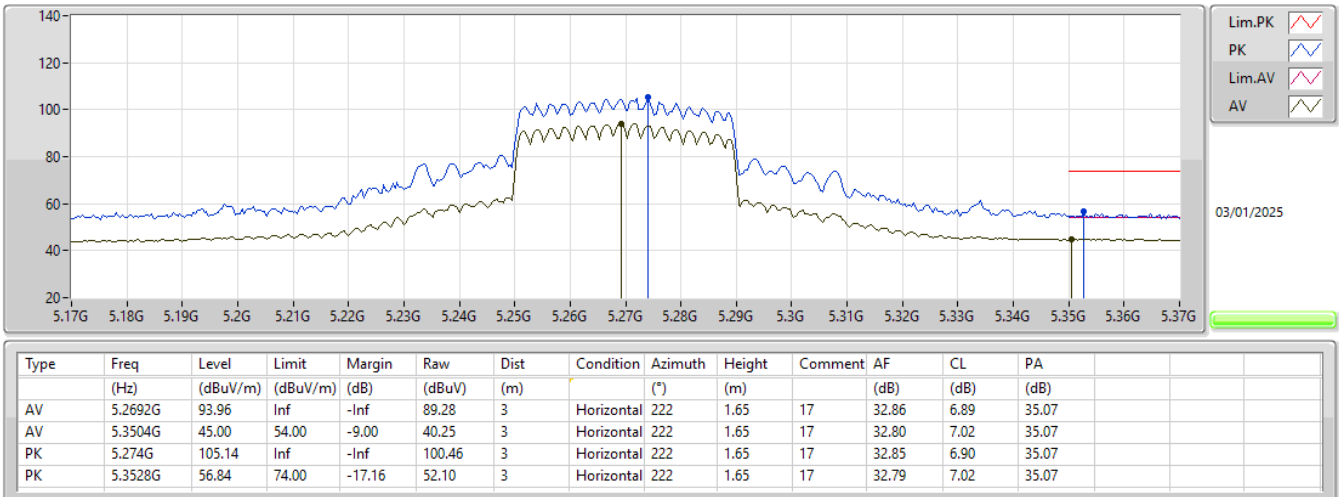
5.25-5.35GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

5270MHz_TX



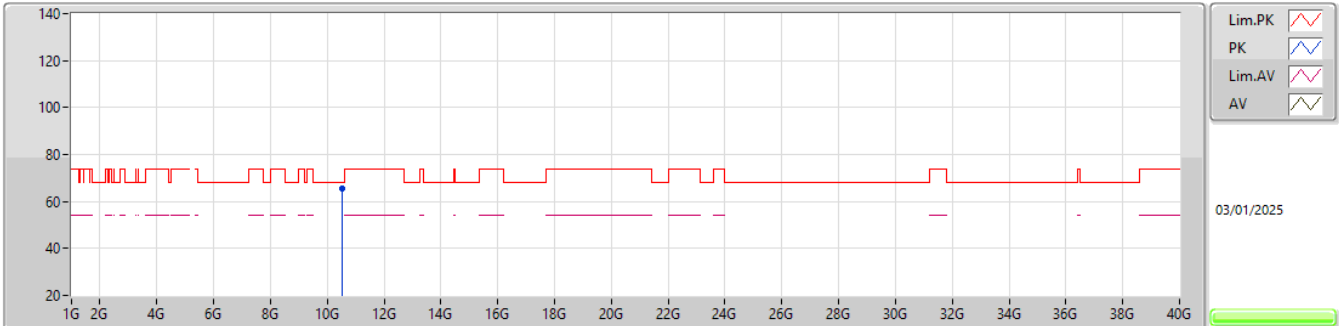
5.25-5.35GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

5270MHz_TX



5.25-5.35GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

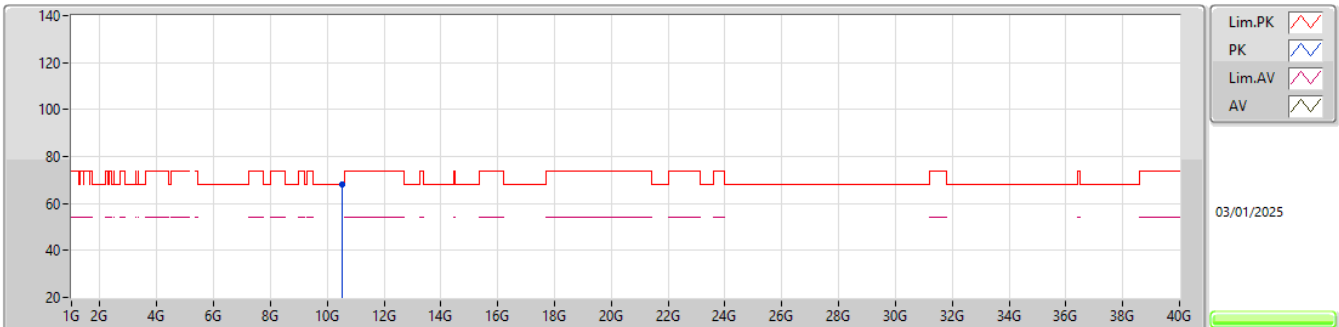
5270MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	10.53072G	65.38	68.20	-2.82	50.94	3	Vertical	107	2.00	17	38.62	10.37	34.55			

5.25-5.35GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

5270MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)			
PK	10.536G	67.98	68.20	-0.22	53.51	3	Horizontal	210	1.16	17	38.64	10.37	34.54			



Summary

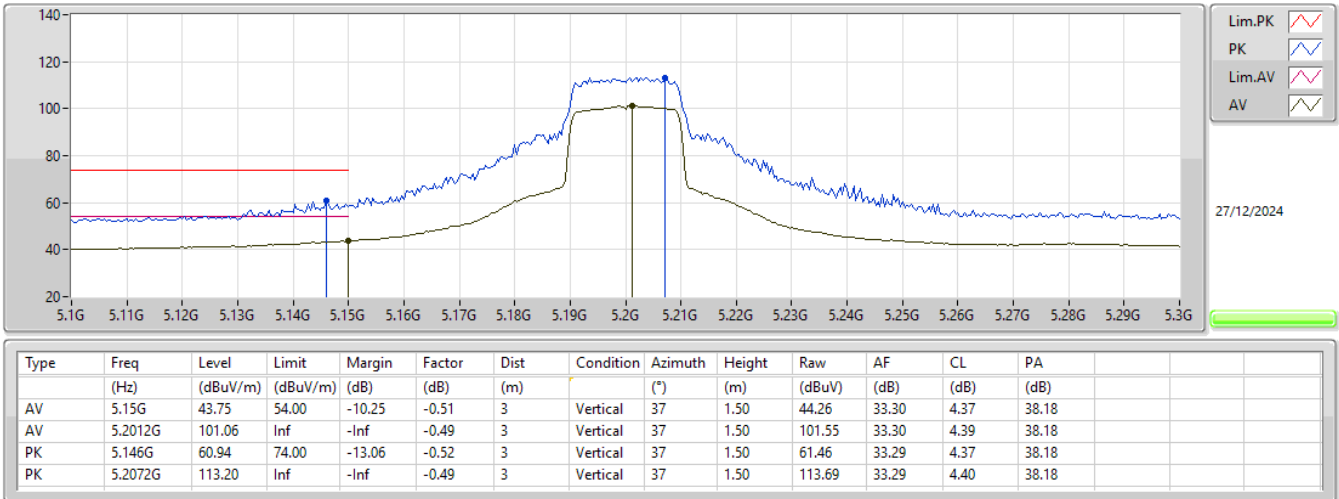
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
5.15-5.25GHz	-	-	-	-	-	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	Pass	AV	5.15G	43.75	54.00	-10.25	3	Vertical	37	1.50

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-
5200MHz	Pass	AV	5.15G	43.75	54.00	-10.25	3	Vertical	37	1.50
5200MHz	Pass	AV	5.2012G	101.06	Inf	-Inf	3	Vertical	37	1.50
5200MHz	Pass	PK	5.146G	60.94	74.00	-13.06	3	Vertical	37	1.50
5200MHz	Pass	PK	5.2072G	113.20	Inf	-Inf	3	Vertical	37	1.50
5200MHz	Pass	AV	5.15G	43.48	54.00	-10.52	3	Horizontal	17	2.44
5200MHz	Pass	AV	5.2008G	100.93	Inf	-Inf	3	Horizontal	17	2.44
5200MHz	Pass	PK	5.1496G	61.98	74.00	-12.02	3	Horizontal	17	2.44
5200MHz	Pass	PK	5.2012G	113.29	Inf	-Inf	3	Horizontal	17	2.44
5200MHz	Pass	PK	10.39664G	53.65	68.20	-14.55	3	Vertical	91	1.05
5200MHz	Pass	PK	10.39628G	54.13	68.20	-14.07	3	Horizontal	284	2.03

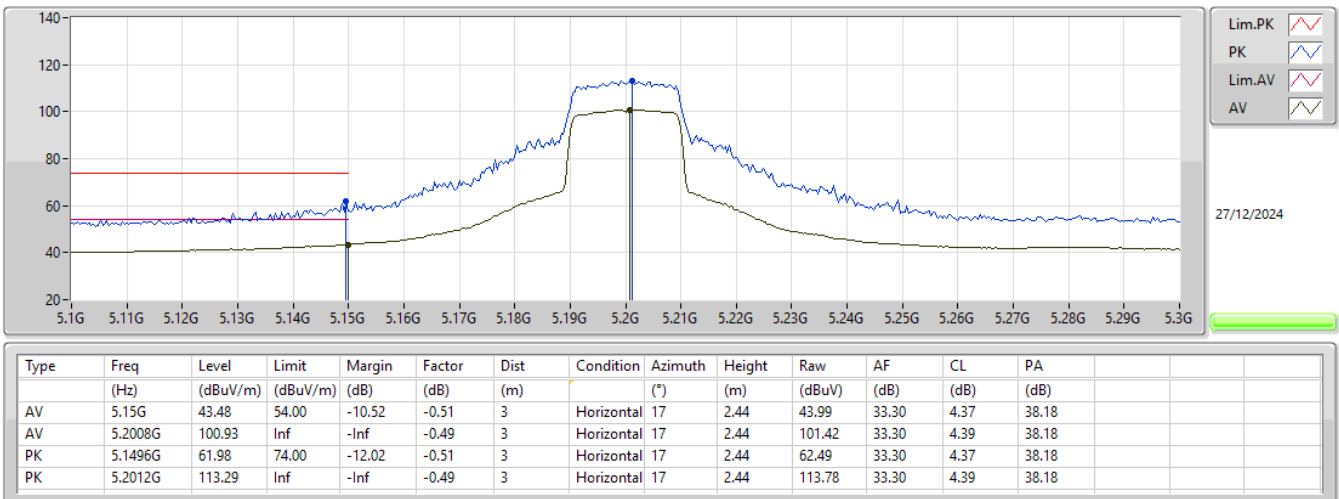
5.15-5.25GHz_802.11ax HEW20-BF_Nss1,(MCS0)_2TX

5200MHz_TX



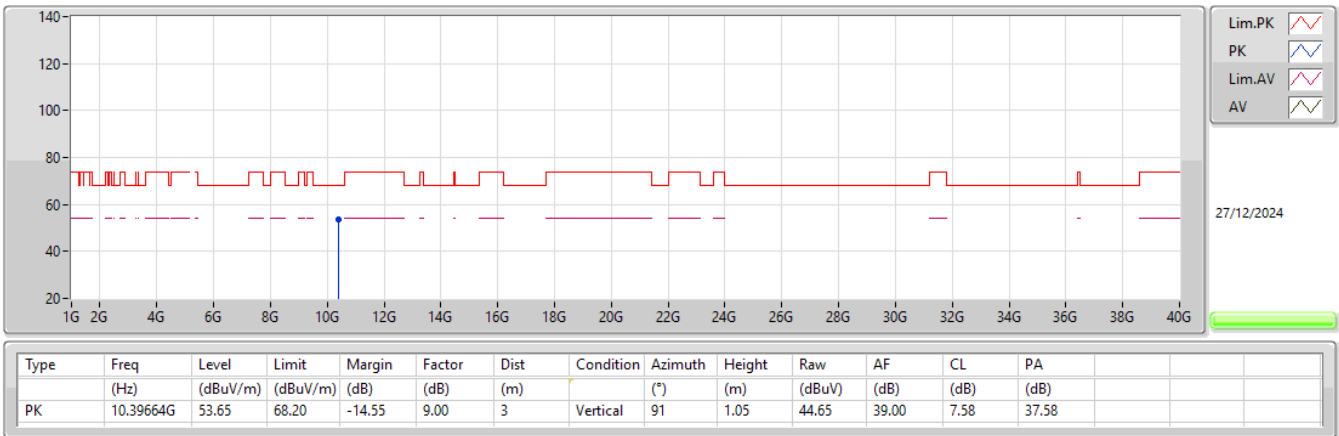
5.15-5.25GHz_802.11ax HEW20-BF_Nss1,(MCS0)_2TX

5200MHz_TX



5.15-5.25GHz_802.11ax HEW20-BF_Nss1,(MCS0)_2TX

5200MHz_TX



5.15-5.25GHz_802.11ax HEW20-BF_Nss1,(MCS0)_2TX

5200MHz_TX

